

WHAT IS CLAIMED AS NEW AND DESIRED TO BE PROTECTED BY  
LETTERS PATENT OF THE UNITED STATES OF AMERICA, IS:

1. An end cap for use within a fluid dispensing nozzle assembly for dispensing high-temperature fluids, comprising:

5 a substantially disk-shaped member fabricated from a thermoplastic material so as not to be heated to elevated temperatures characteristic of the high-temperature fluids being dispensed through a tip portion of the fluid dispensing nozzle assembly;

10 a front face defined upon an axially downstream portion of said substantially disk-shaped member as considered in the direction in which fluid is being dispensed;

means mounted upon said substantially disk-shaped member for fixedly securing said substantially disk-shaped member to a support component of the fluid dispensing nozzle assembly; and

15 a substantially axially central portion of said substantially disk-shaped member, having an aperture defined therethrough through which the tip portion of a nozzle member of the fluid dispensing nozzle assembly can project so as to dispense a fluid, axially recessed rearwardly from  
20 said front face of said substantially disk-shaped member such that when the tip portion of the nozzle member of the fluid dispensing nozzle assembly projects through said aperture, the tip portion of the nozzle member of the fluid dispensing nozzle assembly is recessed from said front face of  
25 said substantially disk-shaped member so as to protect operator personnel from being exposed to the high-temperature nozzle member.

10036450-010702

2. The end cap as set forth in Claim 1, wherein:

said thermoplastic material from which said end cap is fabricated comprises a polyetheretherketone (PEEK) polymer.

5

3. The end cap as set forth in Claim 1, wherein:

said means for fixedly securing said substantially disk-shaped member to the support component of the fluid dispensing nozzle assembly comprises an annular rib member projecting axially away from said front face of said substantially disk-shaped member and having threaded means incorporated upon an external peripheral wall surface thereof for threadedly engaging threaded means incorporated upon an internal peripheral wall surface of the support component of the fluid dispensing nozzle assembly.

20

4. The end cap as set forth in Claim 1, wherein:

an external peripheral surface of said substantially disk-shaped member is knurled so as to facilitate threading and unthreading of said substantially disk-shaped member from the support component of the fluid dispensing nozzle assembly.

25

5. The end cap as set forth in Claim 1, further comprising:  
air passages defined within said substantially ax-

30

ial central portion of said substantially disk-shaped member for integrated fluid flow with the fluid being dispensed by the fluid dispensing nozzle assembly.

5

6. An end cap for use within a hot melt adhesive dispensing nozzle assembly, comprising:

10 a substantially disk-shaped member fabricated from a thermoplastic material so as not to be heated to elevated temperatures characteristic of hot melt adhesive materials being dispensed through a tip portion of the hot melt adhesive dispensing nozzle assembly;

15 a front face defined upon an axially downstream portion of said substantially disk-shaped member as considered in the direction in which the hot melt adhesive material is being dispensed;

20 means mounted upon said substantially disk-shaped member for fixedly securing said substantially disk-shaped member to a support component of the hot melt adhesive dispensing nozzle assembly; and

25 a substantially axially central portion of said substantially disk-shaped member, having an aperture defined therethrough through which the tip portion of a nozzle member of the hot melt adhesive dispensing nozzle assembly can project so as to dispense hot melt adhesive material, axially recessed rearwardly from said front face of said substantially disk-shaped member such that when the tip portion of the nozzle member of the hot melt adhesive dispensing nozzle  
30 assembly projects through said aperture, the tip portion of the nozzle member of the hot melt adhesive dispensing nozzle

assembly is recessed from said front face of said substantially disk-shaped member so as to protect operator personnel from being exposed to the high-temperature nozzle member.

5

7. The end cap as set forth in Claim 6, wherein:

10       said thermoplastic material from which said end cap is fabricated comprises a polyetheretherketone (PEEK) polymer.

15   8. The end cap as set forth in Claim 6, wherein:

20       said means for fixedly securing said substantially disk-shaped member to the support component of the hot melt adhesive dispensing nozzle assembly comprises an annular rib member projecting axially away from said front face of said substantially disk-shaped member and having threaded means incorporated upon an external peripheral wall surface thereof for threadedly engaging threaded means incorporated upon an internal peripheral wall surface of the support component of the hot melt adhesive dispensing nozzle assembly.

25

9. The end cap as set forth in Claim 6, wherein:

30       an external peripheral surface of said substantially disk-shaped member is knurled so as to facilitate threading and unthreading of said substantially disk-shaped

member from the support component of the hot melt adhesive dispensing nozzle assembly.

5

10. The end cap as set forth in Claim 1, further comprising:  
air passages defined within said substantially axial central portion of said substantially disk-shaped member for providing integrated swirl air flow with the hot melt adhesive material being dispensed by the hot melt adhesive dispensing nozzle assembly so as to control the deposition pattern of the dispensed hot melt adhesive material.

15

11. A fluid dispensing nozzle assembly for dispensing high-temperature fluids, comprising:

a fluid dispensing nozzle member having a fluid dispensing discharge port defined within a tip portion of said fluid dispensing nozzle member;

means for mounting said fluid dispensing nozzle member upon a fluid dispensing implement to which the fluid to be dispensed is supplied; and

an end cap comprising a substantially disk-shaped member fabricated from a thermoplastic material so as not to be heated to elevated temperatures characteristic of the high-temperature fluids being dispensed through said tip portion of said fluid dispensing nozzle member; a front face defined upon an axially downstream portion of said substantially disk-shaped member as considered in the direction in which fluid is being dispensed; means mounted upon said sub-

stantially disk-shaped member for fixedly securing said substantially disk-shaped member to said means for mounting said nozzle member upon the fluid dispensing implement; and a substantially axially central portion of said substantially disk-shaped member, having an aperture defined there-  
5 through through which said tip portion of said nozzle member can project so as to dispense a fluid, axially recessed rearwardly from said front face of said substantially disk-shaped member such that when said tip portion of said nozzle  
10 member projects through said aperture, said tip portion of said nozzle member is recessed from said front face of said substantially disk-shaped member so as to protect operator personnel from being exposed to said high-temperature nozzle member.

15

12. The nozzle assembly as set forth in Claim 11, wherein:  
said thermoplastic material from which said end  
20 cap is fabricated comprises a polyetheretherketone (PEEK) polymer.

25 13. The nozzle assembly as set forth in Claim 11, wherein:  
said means for fixedly securing said substantially disk-shaped member to said means for mounting said nozzle member upon the fluid dispensing implement comprises an annular rib member projecting axially away from said front  
30 face of said substantially disk-shaped member and having threaded means incorporated upon an external peripheral wall

surface thereof for threadedly engaging threaded means incorporated upon an internal peripheral wall surface of said means for mounting said nozzle member upon the fluid dispensing implement.

5

14. The nozzle assembly as set forth in Claim 11, wherein:  
an external peripheral surface of said substantially disk-shaped member is knurled so as to facilitate  
10 threading and unthreading of said substantially disk-shaped member from said means for mounting said nozzle member upon the fluid dispensing implement.

15

15. The nozzle assembly as set forth in Claim 11, further comprising:  
air passages defined within said substantially axial  
20 al central portion of said substantially disk-shaped member for integrated fluid flow with the fluid being dispensed by the fluid dispensing nozzle assembly.

25

16. The nozzle assembly as set forth in Claim 15, further comprising:  
an air fitting ring member rotatably mounted upon  
said means for mounting said nozzle member upon the fluid  
30 dispensing implement; and

an air fitting fluidically connected to said air fitting ring member for supplying air to said air passages defined within said substantially axial central portion of said substantially disk-shaped member.

5

17. The nozzle assembly as set forth in Claim 16, wherein:  
said air fitting ring member is fabricated from a thermoplastic material comprising a polyetheretherketone (PEEK) polymer.

18. The nozzle assembly as set forth in Claim 11, wherein:  
said fluid dispensing nozzle member and said means for mounting said fluid dispensing nozzle member upon the fluid dispensing implement are coaxially aligned with respect to each other.

20

19. The nozzle assembly as set forth in Claim 11, wherein:  
said fluid dispensing nozzle member and said means for mounting said fluid dispensing nozzle member upon the fluid dispensing implement are disposed substantially perpendicular with respect to each other.

30

20. A hot melt adhesive dispensing nozzle assembly, com-



prising:

a hot melt adhesive dispensing nozzle member having a hot melt adhesive dispensing discharge port defined within a tip portion of said hot melt adhesive dispensing  
5 nozzle member;

means for mounting said hot melt adhesive dispensing nozzle member upon a hot melt adhesive dispensing implement to which adhesive material to be dispensed is supplied; and

10 an end cap comprising a substantially disk-shaped member fabricated from a thermoplastic material so as not to be heated to elevated temperatures characteristic of the high-temperature hot melt adhesive materials being dispensed through said tip portion of said hot melt adhesive dispensing nozzle member; a front face defined upon an axially  
15 downstream portion of said substantially disk-shaped member as considered in the direction in which hot melt adhesive material is being dispensed; means mounted upon said substantially disk-shaped member for fixedly securing said substantially disk-shaped member to said means for mounting  
20 said nozzle member upon the hot melt adhesive dispensing implement; and a substantially axially central portion of said substantially disk-shaped member, having an aperture defined therethrough through which said tip portion of said nozzle member can project so as to dispense hot melt adhesive material, axially recessed rearwardly from said front  
25 face of said substantially disk-shaped member such that when said tip portion of said nozzle member projects through said aperture, said tip portion of said nozzle member is recessed  
30 from said front face of said substantially disk-shaped mem-

ber so as to protect operator personnel from being exposed to said high-temperature nozzle member.

5

21. The nozzle assembly as set forth in Claim 20, wherein:  
said thermoplastic material from which said end cap is fabricated comprises a polyetheretherketone (PEEK) polymer.

10

22. The nozzle assembly as set forth in Claim 20, wherein:  
said means for fixedly securing said substantially disk-shaped member to said means for mounting said nozzle member upon the hot melt adhesive dispensing implement comprises an annular rib member projecting axially away from said front face of said substantially disk-shaped member and having threaded means incorporated upon an external peripheral wall surface thereof for threadedly engaging threaded means incorporated upon an internal peripheral wall surface of said means for mounting said nozzle member upon the hot melt adhesive dispensing implement.

25

23. The nozzle assembly as set forth in Claim 20, wherein:  
an external peripheral surface of said substantially disk-shaped member is knurled so as to facilitate threading and unthreading of said substantially disk-shaped member from said means for mounting said nozzle member upon

the hot melt adhesive dispensing implement.

- 5 24. The nozzle assembly as set forth in Claim 20, further comprising:

air passages defined within said substantially axial central portion of said substantially disk-shaped member for providing integrated swirl air flow with the hot melt adhesive material being dispensed by the hot melt adhesive dispensing nozzle assembly.

10

- 15 25. The nozzle assembly as set forth in Claim 24, further comprising:

an air fitting ring member rotatably mounted upon said means for mounting said nozzle member upon the hot melt adhesive dispensing implement; and

- 20 an air fitting fluidically connected to said air fitting ring member for supplying swirl air to said air passages defined within said substantially axial central portion of said substantially disk-shaped member.

25

26. The nozzle assembly as set forth in Claim 25, wherein:

said air fitting ring member is fabricated from a thermoplastic material comprising a polyetheretherketone

- 30 (PEEK) polymer.

27. The nozzle assembly as set forth in Claim 20, wherein:  
said fluid dispensing nozzle member and said means  
for mounting said fluid dispensing nozzle member upon the  
hot melt adhesive dispensing implement are coaxially aligned  
5 with respect to each other.

28. The nozzle assembly as set forth in Claim 20, wherein:  
10 said fluid dispensing nozzle member and said means  
for mounting said fluid dispensing nozzle member upon the  
hot melt adhesive dispensing implement are disposed substan-  
tially perpendicular with respect to each other.

15

20

25

30